## Space Weather Forecast

Issued on Saturday, 27 January 2024 at 13:12 Local

**This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales**

**Space Weather Forecast Headline: Chance of G1 Minor Storms day 4 (30 Jan) from onset of coronal hole fast winds. Chance of isolated Moderate flares.**

**Analysis of Space Weather Activity over past 24 hours**

**Solar Activity:** Low with only common-class flares observed, mainly from the complex sunspot now just over the southwest limb. This has been the most active region on the disc, but has been declining, and along another nearby spot will soon move over the horizon onto the far-side. A longitudinally wide region on the northwest-disc has also been simplifying, but maintains some moderate magnetic complexity despite its lack of flaring. The most notable growth has been in a further region on the southwest, which consists of three spots small but distinct spots, and ongoing slow growth, but maintains a simple bipolar magnetic structure. Any other spots are small and simple.

No Earth-directed coronal mass ejections (CMEs) were observed.

**Solar Wind / Geomagnetic Activity:** Solar winds have been inconclusive for any CME notable arrivals, but have seen very weak speed increases, most notably at 26/1955 UTC. These could have been due to very weak and glancing CMEs, with observed speeds rising from background, below 400 km/s, to be slightly elevated at 450-500km/s for a time before declining again. Interplanetary magnetic field (IMF) was generally weak along with the important north-south component. Geomagnetic activity was Quiet throughout.

**Energetic Particles / Solar Radiation:** The count rate of energetic particles (High energy protons) remained at background with no solar radiation storms occurring.

**Four-Day Space Weather Forecast Summary**

**Solar Activity:** Low activity expected, but with a chance of isolated Moderate class flares.

**Solar Wind / Geomagnetic Activity:** A couple of CMEs from 23-24 Jan that are expected to miss just ahead of Earth cannot be ruled out for giving further very slight enhancement early on day 1 (27 Jan). Otherwise winds are expected to be at background levels days 1-3 (27-29 Jan) before the onset of the next coronal hole expected day 4 (30 Jan). Slightly elevated winds are expected to develop, with the potential for a spell of increased geomagnetic activity during the onset. Ongoing chance of an Unsettled to Active spell at first day 1 (27 Jan) but easing to be mainly Quiet. Increasing again to Unsettled to Active day 4 (30 Jan), with a chance of G1 Minor Storm intervals.

**Energetic Particles / Solar Radiation:** The count rate of energetic particles (High energy protons) is forecast to persist at background with no solar radiation storms occurring. There is a very slight chance of this flux rising above background if any notable flares occur from any of the sunspot near the west limb.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

# Met Office Space Weather Forecast

**Geomagnetic Storms:**

| Geo-Magnetic Storm Probability (Exceedance) | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Minor or Moderate | G1 to G2 | No | 5 | 1 | 5 | 40 |
| Strong | G3 | No | 1 | 1 | 1 | 1 |
| Severe | G4 | No | 1 | 1 | 1 | 1 |
| Extreme | G5 | No | 1 | 1 | 1 | 1 |

**Radio Blackouts - X Ray Flares:**

| X Ray Flares Probability | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | R1-R2 M Class | No | 40 | 30 | 30 | 30 |
| Very Active | R3 to R5 X | No | 2 | 2 | 1 | 1 |

**Solar Radiation Storms - (High Energy Protons):**

| Radiation Storms Probability (Exceedance) | Level ($cm^{-2}$ $sr^{-1}$ $s^{-1}$) | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | ≥ S1 | No | 10 | 5 | 2 | 2 |
| Very Active | ≥ S3 * | No | 1 | 1 | 1 | 1 |

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.